

REMARKS

In the Office Action dated October 12, 2004, claim 23 was rejected under 35 U.S.C. § 112, second paragraph. Also, claim 5 was rejected on the same grounds. Claims 1-9, 14-26 and 34-55 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 1,749,421 to Donnellan in view of U.S. Patent No. 4,059,122 to Kinoshita and in further view of U.S. Patent No. 6,193,598 to Tsuchida. In view of the comments and amendments made herein, it is respectfully submitted that all of the pending claims are in patentable condition over the applied references, as well as the rest of the art of record.

§ 112 Rejection

As to the Section 112 rejections, applicant has amended claim 23 to address this rejection. Claim 5 has been cancelled without prejudice. Therefore, these rejections should now be withdrawn.

§ 103 Rejection

Claims 1-9, 14-26 and 34-55 were rejected as being unpatentable over the combination of Donnellan, Kinoshita and Tsuchida. It was stated in this regard that Donnellan discloses a coin hopper 26, a coin slide 6. It was further stated in the Office Action that a coin separating and sorting assembly (20 or 22) is located between the coin hopper and the coin slide. The coin separating and sorting assembly is said to have a separating wheel 20 or 22 having at least one coin aperture 34, 35 or 27, 28, a wheel housing 6 and 24, a motor 11 with a shaft 10 and gears 13, 16 and 17 for driving the separating wheel. It was also stated that a trailing edge is provided on the separating wheel with an angled surface L.

On review of Donnellan, it appears that the separating and sorting assembly

includes a rotating primary carrier 20, a stationary supporting plate 22, a rotating secondary carrier 21 and a stationary base plate 6. The coin slide is identified by the numeral 41 in Donnellan. It is described in the specification of Donnellan (see page 3, line 11) as a discharge chute member. The primary and secondary carriers 20 and 21 are coupled together and are moved by a motor 11 via a spindle 10 and a hub flange 18.

It was stated on page 3 of the Office Action that Donnellan does not expressly disclose, but Kinoshita discloses a first toroidal flange 112 extending away from the face of a separating wheel 106. Donnellan was also admitted not to expressly disclose a second toroidal flange. However, it was stated that Tsuchida discloses a second toroidal flange 32 with gear teeth 33, the flange extending away from a face of a separating wheel and in a direction opposite from the direction of the first toroidal flange. Donnellan, Kinoshita and Tsuchida were said to be analogous art because they all concern coin handling. It was then stated that at the time of the invention, it would have been obvious to one of ordinary skill in the art to have used the first toroidal flange of Kinoshita on the separating wheel of Donnellan, with the motivation being to provide more rigidity to the Donnellan wheel. It was also asserted that it would have been obvious to have used the second toroidal flange as described in Tsuchida on the separating wheel of Donnellan with the motivation being to drive the wheel assembly of Donnellan.

Claim 14

Applicant respectfully submits that even the three way combination of Donnellan, Kinoshita and Tsuchida neither teaches nor discloses a coin separating and sorting assembly, such as is recited in claim 14. More particularly, claim 14 recites a

separating wheel and a wheel housing on which the separating wheel is supported. A first coin support surface is provided on the wheel housing and a second coin support surface is defined on the wheel housing wherein the second coin support surface is oriented approximately perpendicular to the first coin support surface.

With reference now to Figure 13 of the instant application (which is reproduced below):

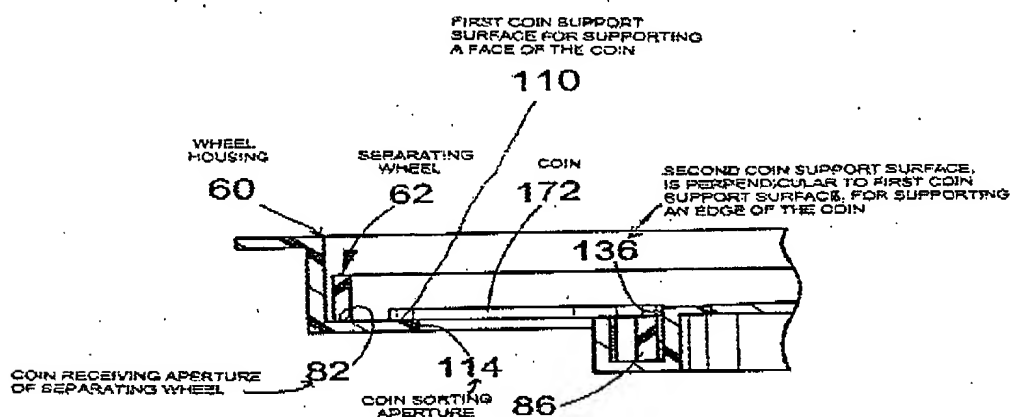


FIG. 13

shown there is a separating wheel 62 that is supported on a wheel housing 60 (each of these can be seen in perspective view in Figure 1C of the drawings). A coin 172 is located in the at least one coin receiving aperture 82 (Figure 2) of the separating wheel 80. The coin is supported by a first coin support surface (110, Figure 4) on the wheel housing and a second coin support surface 136 defined on the wheel housing. The second coin support surface is oriented approximately perpendicular to the first coin support surface. It will be noted that the coin 172 overlies the at least one sorting aperture 114 in the wheel housing. However, the diameter of the coin 172 is too large

to allow the coin to fall through that particular coin sorting aperture.

In all of Donnellan, Kinoshita and Tsuchida, the two coin support surfaces are provided, respectively, by the wheel housing and the separating wheel. In Donnellan, for example, one coin support surface is defined on the wheel housing 6. It supports a face of the coin. But, the other coin support surface, for supporting an edge of the coin, is defined on the secondary carrier 21, as is illustrated in Figure 3 of Donnellan. In other words, both coin support surfaces are not provided on the Donnellan wheel housing 6. As explained in the present application, it is desirable that the sorting occur between the rolling surface, or second support surface 136, and the outer edge of one of the respective apertures 114a - 114e (Figure 4) extending through the wheel housing wall 110. A reason to provide all of the coin support surfaces on the housing 60 is that such construction enables a more accurate sort to take place. In other words, the separator member 62 is used solely to move the coin along the ramp or housing 60 while all of the sorting functions are performed by the non-moving element, i.e., the housing (see the instant specification, page 14, lines 7-21).

Moreover, it is noted that the stationary support or rolling surface 136, against which an edge of a coin being sorted rolls or slides as the coin is being moved by the separating wheel 62, provides a support for the radially innermost point of the coin 172 (see page 10, lines 25-33). As noted, there is no teaching or disclosure of such a structure in the Donnellan patent. In fact, in Donnellan, it is the radially outermost point of the coin that is supported by the secondary carrier 21, as is illustrated in Figure 3. That is so because the sort apertures 36 - 40 and 36' - 40' are located on a lower portion of the base plate 6 as is evident from Figure 1.

In addition, there is no teaching or disclosure of such a structure in either

Kinoshita or Tsuchida. In Kinoshita, the coins are sorted in sorting passageways 6 by sorting devices 5. There is no teaching or disclosure in Tsuchida of what the sorting devices look like. Thus, Kinoshita neither teaches nor discloses first and second coin support surfaces, the two being oriented approximately perpendicular to each other, and being located on a wheel housing as is recited in claim 14. Moreover, the sorting devices are spaced away from the coin delivery device 4 on which the revolving disc 106 is positioned. Thus, Kinoshita does not disclose the coin separating and sorting assembly as recited in claim 14, either alone or in combination with Donnellan.

As to Tsuchida, this document discloses a size changeable hopper which is adjustable to accommodate coins of different sizes. In this reference, a disc 5 is mounted on a guide board 26. It is spaced from the guide board by an adjustment board 21 and a spacer 25. However, it does not appear that there is any sorting function being performed. In fact, Tsuchida pertains to a hopper which stores a plurality of the same kind of coin in a loose condition and releases the coins one by one (see column 1, lines 6-8). Thus, even the combination of Tsuchida and Donnellan does not teach or disclose the subject matter recited in claim 14.

Finally, even the asserted three-way combination of Donnellan, Kinoshita and Tsuchida neither teaches nor discloses the subject matter recited in claim 14. Therefore, claim 14 is patentable over the applied references, as well as the remainder of the cited art.

Claims 15-18

Dependent claims 15-18 merely further patentably define the detailed subject matter of their parent claim or each other. As such, these claims are also believed to be in condition for allowance over the art of record.

Claim 19

Claim 19 recites a coin separating and sorting assembly comprising a separating wheel and a wheel housing. A first coin support surface is provided on the wheel housing to support a face of an associated coin. A second coin support surface is defined on the wheel housing for supporting an edge of the associated coin.

As with claim 14, it is respectfully submitted that claim 19, which recites that both supporting surfaces are located on the wheel housing, patentably defines over the applied combination of Donnellan, Kinoshita and Tsuchida, as well as the remainder of the cited art. Quite simply, there is no teaching or disclosure of providing both a first coin support surface which supports a face of the coin and a second coin support surface which supports an edge of the coin on the same element, namely, the wheel housing.

Claims 20-22

Dependent claims 20-22, which merely further patentably define the detailed subject matter of their parent claim or each other are also believed to be in condition for allowance over the art of record.

Claim 23

Independent claim 23 recites a coin separating and sorting assembly comprising a separating wheel and a wheel housing. A first coin support surface is provided on the wheel housing and a second coin support surface is defined on the wheel housing. Claim 23 further recites that a trailing edge of the at least one coin receiving aperture of the separating wheel is so shaped as to allow an associated coin held in that aperture to contact the second coin support surface before the associated coin reaches the at least one coin sorting aperture located in the wheel housing.

As with independent claims 14 and 19, it is respectfully submitted that the applied three-way combination of Donnellan, Kinoshita and Tsuchida neither teaches nor discloses the subject matter recited in claim 23. Moreover, there is no teaching or disclosure in any of the applied three references of so defining the coin receiving aperture of the separating wheel as to allow the associated coin to contact the second support surface defined on the wheel housing before the associated coin reaches the at least one sorting aperture. Therefore, claim 23 also patentably defines over the asserted three-way combination and the remainder of the cited art.

Claims 24-26

Dependent claims 24-26 merely further patentably define the detailed subject matter of their parent claim. As such, these claims are also believed to be in condition for allowance over the art of record.

For example, claim 26 recites that the at least one sorting aperture on the separating wheel includes a trailing edge and a leading edge. The trailing edge has a tapered surface that is smaller in thickness than is a thickness of the thinnest meant to be sorted. The leading edge, on the other hand, has a thickness slightly greater than a thickness of the thickest coin meant to be sorted. Such differential thicknesses at spaced locations on the separating wheel are not disclosed in Donnellan. Moreover, they are not disclosed in Kinoshita or Tsuchida either, nor in the remainder of the cited art. Accordingly, claim 26 is also in condition for allowance over the art of record.

Claim 34

Independent claim 34 has not been amended. It recites a separating member and a housing on which the separating member is moveably supported. A stationary coin support surface is provided on the housing and a stationary coin rolling surface is

also provided on the housing. The coin rolling surface is identified by the numeral 136 in Figure 13. However, it should also be appreciated that coins could not only roll but slide in relation to the surface 136. In this connection, it is stated in the instant specification that the stationary support surface 136 is such that an edge of a coin being sorted either rolls or slides against it (see the instant specification, page 10, lines 27 - 29). It is respectfully submitted that there is no teaching or disclosure of such a coin separating and sorting assembly in the applied combination of Donnellan, Kinoshita and Tsuchida, or in any of the other cited art. As such, claim 34 is also in condition for allowance over the art of record.

Claims 35-41

Dependent claims 35-41 merely further patentably define the detailed subject matter of their parent claim or each other. As such, these claims are also believed to be in condition for allowance over the art of record.

Claim 42

Independent claim 42 recites a coin bank comprising a coin hopper and a coin separating and sorting assembly comprising a separating plate and a housing on which the separating plate is moveably mounted. The separating plate includes a plurality of coin receiving apertures, each having an identical shape and having a substantially constant diameter and a toroidal flange, of one piece with and extending away from a plane of the separating plate. Each of the coin receiving apertures of the separating plate will at some point overlap each of four coin sorting apertures of the housing. Each associated coin meant to be sorted drops from a respective coin receiving aperture into an appropriately sized one of the four coin sorting apertures. Also, each coin meant to be sorted moves towards an axis of rotation of the separating plate prior to each coin

receiving opening overlying a first of the four coin sorting apertures.

With reference to the instant specification, it is there stated that the coins are urged by gravity radially inwardly during rotation of the wheel, due to the shape of the aperture 82 and the angle at which the separator wheel 62 is mounted, before the coins reach the first aperture in the wheel housing. In other words, the angle at which the separator wheel 62 and the wheel housing 60 are oriented in relation to a horizontal plane is large enough to overcome the force of friction and allow the coins to slide radially inwardly on the wheel housing (see the instant specification page 8, lines 15-23). It is also apparent from Figure 2 that each of the apertures 82 is identically shaped. As is evident from Figure 4, at least four coin sorting apertures 114a - 114e are disclosed, one each for dimes, pennies, nickels and quarters. In Figure 4, a fifth aperture 114e is disclosed for sorting dollar coins. But, of course, the coin sorter could be manufactured to only have four coin sorting apertures for the four smaller denomination coins mentioned.

Even if Kinoshita and Tsuchida are combined with Donnellan, it is respectfully submitted that this applied combination does not render unpatentable claim 42. It is noted in this regard that the coin carrying apertures, i.e., the outer annular row of pockets 32 and the inner annular row of pockets 33 on the secondary carrier 21, which are the only apertures that selectively overlie the coin sorting apertures 36-40 and 36'-40' in the base plate 6 of Donnellan, are not apertures of a substantially constant diameter. Rather, they are trapezoidal, although being described in Donnellan as being square. In fact, they need to be trapezoidal or square in order that the coins assume the correct position for sorting (see Donnellan, page 3, lines 55-73).

It is there stated that the coins within the pockets 32 and 33 are thrown both by

centrifugal force and gravity to the outer limits of the pockets (i.e., away from the rotational axis of the secondary carrier 21) as they are caused, by the rotation of the plate, to approach the discharge openings on the base plate. Thus, in contrast to claim 42, Donnellan teaches a coin sorting design in which the coins meant to be sorted are moved away from the rotational axis of the pair of Donnellan coin sorting wheels 20 and 21. That is the reason why Donnellan teaches rectangular or trapezoidal openings. In contrast, claim 42 recites that the coins meant to be sorted are moved radially inwardly, toward the rotational axis of the sorting wheel.

Moreover, it wouldn't be reasonable to simply eliminate the supporting plate 22 and the secondary carrier 21 of Donnellan and overlie the base plate 6 with the primary carrier plate 20. Any such attempt would lead to multiple coins falling through the openings in the base plate 6, since the coin hopper 26 is disposed directly above the coin sort openings in the base plate 6. Accordingly, claim 42 patentably defines over the asserted combination of Donnellan, Kinoshita and Tsuchida, as well as the remainder of the cited art.

Claims 43-46

Dependent claims 43-46, which merely further patentably define the detailed subject matter of their parent claim or each other, are similarly in condition for allowance.

Claim 47

Independent claim 47 recites a coin separating and sorting assembly comprising a ring-shaped separating wheel and a wheel housing on which the separating wheel is supported. The ring shape of the separating wheel of the instant application is clearly illustrated in, e.g., Figure 2. A discussion of the ring-like nature of the separating wheel

is to be found on page 6 of the instant specification. There is no teaching or disclosure of such a ring-shaped separating wheel in any of Donnellan, Kinoshita or Tsuchida. Rather, all of these disclose disc shaped separating plates. The ring shape of the instant application's separating wheel is advantageous to provide a sorting structure in which both coin support surfaces employed in sorting are provided on the stationary, non-moving, wheel housing, rather than having one of the support surfaces being provided on the separating wheel. There is no teaching or disclosure of such a ring-shaped separating wheel in any of the cited art. Therefore, claim 47 is in condition for allowance over the art of record.

Claims 48-55

Since claim 47 is in condition for allowance, so are its dependent claims 48-55, as these merely further patentably define the detailed subject matter of their parent claim or each other.

For example, claim 50 recites that an inner periphery of the separating wheel includes at least one slot which is aligned with the at least one coin receiving aperture to allow an edge of the associated coin to protrude therethrough. With reference to Figure 2, the slot is identified by the numeral 88. It can be seen that the slot communicates with the coin receiving aperture 82 (see the instant specification page 6, lines 35-37). Moreover, it is evident from Figure 13 that the coin extends through that slot so that it can contact the coin support surface 136 provided on the wheel housing. There is clearly no teaching or disclosure of such a structure in any of the prior art. Therefore, it is respectfully submitted that claim 50 is also in condition for allowance over the cited art.

Claim 56

Independent claim 56 recites a coin bank comprising a housing, a coin separating and sorting assembly including a separating wheel and a wheel housing and a drawer slidably mounted in the housing, as well as at least one coin tube supported by the drawer and removable therefrom. The at least one coin receiving aperture of the separating wheel selectively overlies each of the plurality of coin sorting apertures in order to allow an associated coin to drop from the at least one coin receiving aperture into an appropriately sized one of the plurality of coin sorting apertures. There is no teaching or disclosure of a coin bank comprising the elements recited in claim 56, even in the applied combination of three references.

Donnellan discloses a receptacle 43 which appears to be merely a box that is not connected with the housing, i.e., the framework 7 holding the sort mechanism. As previously mentioned, in Donnellan, the coin receiving apertures do not overlie the coin sorting apertures so as to allow a coin to drop into the coin sorting apertures. While Kinoshita appears to disclose separate till drawers 450 for each denomination of coin, there is no teaching or disclosure in Kinoshita of a drawer which supports at least one coin tube that is removable from the drawer. Accordingly, it is respectfully submitted that claim 56 is also in condition for allowance over the applied references or the rest of the art of record.

Claim 57

Independent claim 57 recites a coin bank comprising a housing, a coin separating and sorting assembly mounted in the housing and a plurality of coin tubes, each of which is in communication with a respective one of the plurality of coin sorting apertures. The plurality of coin tubes is selectively held in the housing and is disposed

at an acute angle in relation to a horizontal plane. There is no teaching or disclosure in any of the applied three references to Donnellan, Kinoshita or Tsuchida of coin tubes in general, much less coin tubes which are in communication with a respective one of a plurality of coin sorting apertures defined on a wheel housing such that the coin tubes are disposed at an acute angle in relation to a horizontal plane. The claimed subject matter is disclosed in Figures 1A-1C of the drawings. Those figures are exploded perspective views of the first, second and the third portions of the coin bank according to a first embodiment of the present invention. It is therefore respectfully submitted that claim 57 is also in condition for allowance over the art of record.

Claim 58

Claim 58 recites a coin bank comprising a housing, a coin separating and sorting assembly, and a plurality of coin tubes, each of which is in communication with a respect one of the plurality of coin sorting apertures. The plurality of coin tubes is oriented approximately perpendicular to a plane of the wheel housing coin sorting face. For the reason outlined in detail above with regard to claim 57, it is respectfully submitted that claim 58 is also in condition for allowance over the art of record.

Claim 59

Applicant herewith submits new independent claim 59. This claim recites a coin separating and sorting assembly comprising a separating wheel including at least one coin receiving aperture and a wheel housing on which the separating wheel is supported. The wheel housing includes a first portion located in a first plane, the first portion being approximately ring-shaped and including at least one coin sorting aperture. A second portion is located in a second plane, spaced from the first plane. The second portion is encircled by the first portion.

The subject matter of claim 59 is disclosed in Figure 4 of the instant application's drawings. There, it can be seen that the wheel housing 60 includes at least one coin receiving aperture, five such apertures 114a - 114e are shown. These apertures are located in a first portion 110 of the wheel housing and the first portion is approximately ring-shaped. A second portion 130 is located in a second plane. The second portion is encircled by the first portion. As best seen in Figure 10, the second portion is located in a second plane that is spaced away from the first plane. There is no teaching or disclosure of such a wheel housing in any of the applied art to Donnellan, Kinoshita or Tsuchida. Moreover, such a wheel housing is not disclosed in any of the cited art. Therefore, it is respectfully submitted that independent claim 61 is also in condition for allowance over the art of record.

Claims 60-64

Dependent claim 60 recites that the first portion comprises a plurality of coin sorting apertures of different sizes. This is clearly shown in several of the drawings of the application.

Dependent claim 61 recites that the second plane is located above the first plane. This can be seen from Figure 10 of the drawings. As is evident from Figure 4 of the drawings, the second portion is approximately circular as recited in claim 62.

New dependent claim 63 recites that the wheel housing further comprises a flange located radially outwardly of the first portion and extending away from the first plane. This can be seen in Figure 13, among others.

Finally, claim 64 recites that the wheel housing further comprises a groove located between the first portion and the second portion, the groove accommodating a portion of the separating wheel. Such groove can be seen in Figure 4 and is identified

by the numeral 116. There is no teaching or disclosure in any of the applied art to Donnellan, Kinoshita or Tsuchida or in the remainder of the art of the structure which is recited in claim 64. Therefore, this claim is also believed to be in condition for allowance over the art of record.

Claim 65

New claim 65 is a rewriting of claim 1 with additional language. For the reason outlined in detail above with regard to claim 42, it is respectfully submitted that claim 59 is also in condition for allowance over the art of record.

Claims 66-69

Dependent claims 66-69, which merely further patentably define the detailed subject matter of claim 65, or each other (and are a rewriting of claims 2-5), are also believed to be in condition for allowance over the art of record.

Claim 70

New claim 70 is a rewriting of previous claim 6. For the same reason as advanced with regard to claim 47, it is respectfully submitted that claim 70 is also in condition for allowance over the art of record.

Claims 71-73

Dependent claims 71-73 which merely further patentably define the detailed subject matter of their parent claim, claim 70, and are a rewriting of claims 7-9. It is respectfully submitted that these claims are also in condition for allowance over the art of record.

Summary

For the reasons outlined in detail above, it is respectfully submitted that all of the pending claims are in condition for allowance over the art of record. Such allowance is

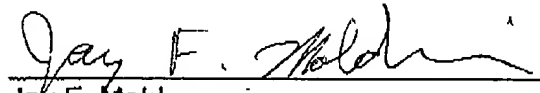
earnestly solicited.

Interview

Applicant's respectfully request that another interview be scheduled with the Examiner should the Examiner have any issues concerning the claims presented herein.

Respectfully submitted,

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